

## Appendix F

# Common Conversion Factors

### Permutations of SI Units

1 gC = 1 gram carbon (C)  
1 GgC = gigagram carbon (C) = 1,000 metric tons carbon (C)  
1 TgC = 1 teragram carbon (C) = 1 million metric tons carbon (C)  
1 PgC = 1 petagram carbon (C) = 1 billion metric tons carbon (C)  
1 ppmv = 1 part per million by volume in the atmosphere  
1 ppbv = 1 part per billion by volume in the atmosphere  
1 pptv = 1 part per trillion by volume in the atmosphere

### Density

1 thousand cubic feet of methane = 42.28 pounds  
1 thousand cubic feet carbon dioxide = 115.97 pounds  
1 metric ton natural gas liquids = 11.6 barrels  
1 metric ton unfinished oils = 7.46 barrels  
1 metric ton alcohol = 7.94 barrels  
1 metric ton liquefied petroleum gas = 11.6 barrels  
1 metric ton aviation gasoline = 8.9 barrels  
1 metric ton naphtha jet fuel = 8.27 barrels  
1 metric ton kerosene jet fuel = 7.93 barrels  
1 metric ton motor gasoline = 8.53 barrels  
1 metric ton kerosene = 7.73 barrels  
1 metric ton naphtha = 8.22 barrels  
1 metric ton distillate = 7.46 barrels  
1 metric ton residual oil = 6.66 barrels  
1 metric ton lubricants = 7.06 barrels  
1 metric ton bitumen = 6.06 barrels  
1 metric ton waxes = 7.87 barrels  
1 metric ton petroleum coke = 5.51 barrels  
1 metric ton petrochemical feedstocks = 7.46 barrels  
1 metric ton special naphtha = 8.53 barrels  
1 metric ton miscellaneous products = 8.00 barrels

### Alternative Measures of Greenhouse Gases

1 pound methane, measured in carbon units ( $\text{CH}_4\text{-C}$ ) = 1.333 pounds methane, measured at full molecular weight ( $\text{CH}_4$ )  
1 pound carbon dioxide, measured in carbon units ( $\text{CO}_2\text{-C}$ ) = 3.6667 pounds carbon dioxide, measured at full molecular weight ( $\text{CO}_2$ )  
1 pound carbon monoxide, measured in carbon units ( $\text{CO-C}$ ) = 2.333 pounds carbon monoxide, measured at full molecular weight ( $\text{CO}$ )  
1 pound nitrous oxide, measured in nitrogen units ( $\text{N}_2\text{O-N}$ ) = 1.571 pounds nitrous oxide, measured at full molecular weight ( $\text{N}_2\text{O}$ )

## **Weight**

1 kilogram = 2.205 pounds

1 short ton = 0.9072 metric tons

1 metric ton = 1.1023 short tons = 2,204.6 pounds

1 cubic meter = 35.3147 cubic feet

1 cubic centimeter =  $3.531 \times 10^{-5}$  cubic feet

## **Area**

1 acre = 0.40468724 hectare (ha) = 4,047 m<sup>2</sup>

1 hectare (ha) = 10,000 m<sup>2</sup> = 2.47 acres

1 kilometer = 0.6214 miles

## **Energy**

1 joule =  $947.9 \times 10^{-21}$  quadrillion Btu

1 exajoule =  $10^{18}$  joules = 0.9479 quadrillion Btu

1 quadrillion Btu = 1.0551 exajoule